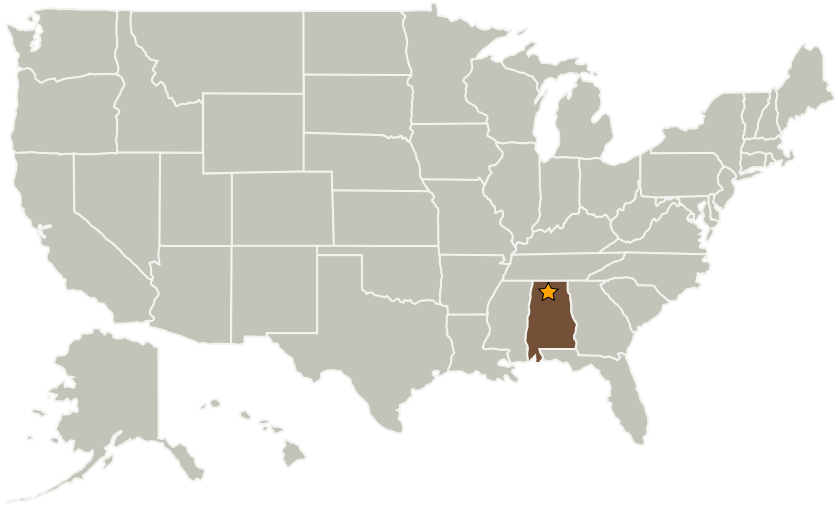
# Neural Network Enhanced Structure Determination of Osteoporosis, Immune System, and Radiation Repair Proteins, Phase II

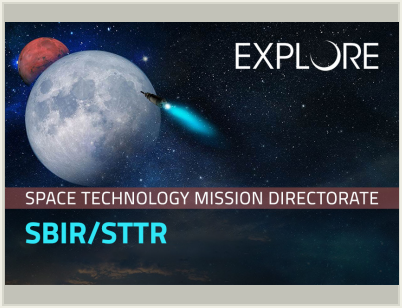
Completed Technology Project (2004 - 2006)

## Project Introduction

We propose a dual objective innovation that has valuable NASA applicability and tremendous commercial potential. The first innovation is the structure determination of osteoporosis, immune system diseases, and radiation damage repair proteins utilizing proprietary neural network based algorithms. The long-term results from this innovation could provide effective medical countermeasures for bone loss, immune system compromise and harmful radiation effects seen in astronauts upon long-duration space missions. The second innovation is a commercial grade multipurpose neural network based informatics system configurable for automated, real-time sensory data input and automatic correlation identification applicable to autonomous astronaut health monitoring and environmental correlation. This innovation also has significant commercial applications in the health care industries as a hospital wide health monitoring and environmental correlation system.

## Primary U.S. Work Locations and Key Partners



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| Organizations Performing Work | Role | Type | Location |
|---|---|---|---|
| ★Marshall Space Flight Center(MSFC) | Lead Organization | NASA Center | Huntsville, Alabama |
| Diversified Scientific, Inc. | Supporting Organization | Industry | Birmingham, Alabama |
| InSilicor, Inc. | Supporting Organization | Industry | South Birmingham, Alabama |

| Primary U.S. Work Locations |
|---|
| Alabama |

## Organizational Responsibility

**Responsible Mission Directorate:**

Space Technology Mission Directorate (STMD)

**Lead Center / Facility:**

Marshall Space Flight Center (MSFC)

**Responsible Program:**

Small Business Innovation Research/Small Business Tech Transfer

## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

## Technology Areas

**Primary:**

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
  - TX12.2 Structures
    - TX12.2.3 Reliability and Sustainment